

## **Amendments to the Claims:**

1-16 (cancelled)

17. (new) Magnetic measurement probe for the acquisition of magnetization data of a magnetic item, said measurement probe comprising at least one magnetizing coil, wherein at least two magnetic sensors are disposed inside said magnetizing coil, one at either end thereof, said sensors having their magnetic axes substantially aligned with the magnetic field inside the coil.

18. (new) Magnetic measurement probe according to claim 17, wherein said magnetizing coil is a magnetic core free coil.

19. (new) Magnetic measurement probe according to claim 18, wherein said magnetizing coil is a cylinder coil.

20. (new) Magnetic measurement probe according to claim 17, wherein said magnetizing coil is a cylinder coil.

21. (new) Magnetic measurement probe according to claim 17, wherein said magnetic sensors are induction sensors in the form of a sensing coil and a compensating coil, respectively, and the outer diameters of said sensing coil and compensating coil are smaller than the inner diameter of said magnetizing coil.

22. (new) Magnetic measurement probe according to claim 17, wherein said magnetic sensors are magnetic field sensors in the form of a sensing component and a compensating component, respectively, and the outer diameters of said sensing component and compensating component are smaller than the inner diameter of said magnetizing coil.

23. (new) Magnetic measurement probe according to claim 17, further comprising a probe holder for keeping item in an appropriate position and distance with respect to

the magnetizing coil 3 and the sensors, such that the magnetic material M within the detection area of said magnetic sensors is in a magnetic field region of said magnetizing coil where the magnetic field strength does not deviate more than 15 % from its value inside said magnetizing coil 3.

24. (new) Magnetic measurement probe according to claim 23, wherein said magnetic field strength does not deviate more than 10% from its value inside said magnetizing coil 3.

25. (new) Magnetic measurement probe according to claim 23, further comprising a sample support made of non-magnetic material of low electric conductivity.

26. (new) Magnetic measurement probe according to claim 17, further comprising a sample support made of non-magnetic material of low electric conductivity.

27. (new) Method for measuring magnetization characteristics of at least part of an item, said item comprising at least one magnetic security material, said method comprising the steps of:

a) positioning a measurement probe according to claim 17 on said item, such that said material is within the region H3 of practical field homogeneity of the probe's magnetizing coil,

b) applying by means of said magnetizing coil at least one value of a magnetic field to the item, and

c) measuring at least one value of magnetic characteristic of said material, using said magnetic sensors.

28. (new) Method according to claim 27, wherein said item is a security document or article.

29. (new) Method according to claim 27, wherein the corresponding magnetization value B of said material is measured upon applying at least one value of magnetic field H to said material.

30. (new) Method according to claim 27, wherein the corresponding induction value  $dB/dt$  of said material is measured upon application of a magnetic field variation  $dH/dt$  for at least one value of magnetic field  $H$  to said material.

31. (new) Method according to one claim 27, wherein said item is placed on a probe holder.

32. (new) Authentication device for authenticating at least one item, said item comprising at least one magnetic security material, said authentication device comprising:

- a) a measurement probe according to claim 17, together with corresponding driving and sampling electronics,

- b) a processing device with implemented algorithm for driving said probe and sampling, digitizing, processing and comparing magnetic characteristic values,

- c) at least one memory device for storing sample and reference magnetic characteristic values.

33. (new) Authentication device according to claim 32, wherein said item is a security marking.

34. (new) Authentication device according to claim 32, further supporting a learning mode for acquiring and storing reference magnetic characteristics of a magnetic reference item, and a testing mode for acquiring, storing and comparing sample magnetic characteristics from a sample item, to derive an authenticity signal.

35. (new) Authentication device according to claim 32, further comprising data transfer means for performing said comparison of the measured magnetization data of the sample with corresponding previously stored reference values and deriving an authenticity yes/no indicator at a remote place and for transmitting back said authenticity indicator an authentication site.

36. (new) Method for authenticating a security document or article, carrying a thin layer of magnetic material, by means of an authentication device according to claim 32, said method comprising the steps of

a) providing, in a digital memory, magnetic characteristic values of a magnetic reference item, as reference data;

b) providing a security document or article to be authenticated, said security document or article comprising a thin layer of magnetic material in or on at least part of its surface;

c) acquiring into a digital memory, using said authentication device, magnetic characteristic values of said document or article provided in step (b);

d) processing the digital data acquired in step (c) to correct them for measurement-related circumstances;

e) comparing the data obtained in step (d) with the corresponding stored reference data provided in step (a), using a predefined comparison algorithm and a predefined tolerance criterion, thereby deriving an authenticity yes/no indicator.

37. (new) Method according to claim 36, wherein said reference data are acquired by said authentication device.